

REMARKS

Applicant submits this Amendment After Final in reply to the Final Office Action dated July 21, 2003. As an initial matter, Applicant gratefully acknowledges the Examiner's indication of the allowability of the subject matter of claims 58-60 and 79. Applicant has rewritten claims 58-60 and 79 in independent form, including the subject matter of the base claim and any intervening claims. Accordingly, Applicant submits that claims 58-60 and 79 are now in condition for allowance. Applicant also gratefully acknowledges the Examiner's allowance of claim 80.

Applicant would like to note, however, that Applicant's rewriting of claims 58-60 and 79 into independent form is not an acquiescence to the fact that the subject matter of the base claim and any intervening claims are unpatentable over the cited references. To the contrary, Applicant believes that at least the subject matter of independent claim 41, prior to amending, is patentable over the cited references. Nevertheless, solely in the interests of expediting the prosecution of this application, Applicant has rewritten claims 58-60 and 79 into independent form at this time.

By this Amendment, Applicant has cancelled claims 53, 54, and 74, without prejudice or disclaimer, and amended additional claims 41, 42, 63, 64, and 69-73 to more clearly define the claimed invention.

Before entry of this Amendment, claims 41-80 were pending in this application. After entry of this Amendment, claims 41-52, 55-73, and 75-80 remain pending in this application.

The originally-filed specification, claims, abstract, and drawings fully support the subject matter of amended claims 41, 42, 58-60, 63, 64, 69-73, and 79. No new matter is introduced.

In the Office Action, the Examiner rejected claims 41 and 65-69 under 35 U.S.C. §102(b) as being anticipated by Paul et al. (WO 86/07454) ("Paul"); rejected claims 42-46, 49-50, 53, 55-56, 62, 70-72, and 76-77 under 35 U.S.C. §103(a) as being unpatentable over Paul in view of Hafeman et al. (U.S. Patent No. 5,959,738) ("Hafeman"); rejected claim 47 under 35 U.S.C. §103(a) as being unpatentable over Paul in view of Hafeman, and in further view of Van Den Bosch (U.S. Patent No. 3,832,062); rejected claims 48, 51, and 73 under 35 U.S.C. §103(a) as being unpatentable over Paul in view of Hafeman, and in further view of Bach et al. (U.S. Patent No. 4,730,922) ("Bach"); rejected claims 52, 57, 63-64, and 75 under 35 U.S.C. §103(a) as being unpatentable over Paul in view of Bach; rejected claims 54 and 74 under 35 U.S.C. §103(a) as being unpatentable over Paul in view of Hafeman, and in further view of Khaled et al. (FR 2,792,725) ("Khaled"); and rejected claims 61 and 78 under 35 U.S.C. §103(a) as being unpatentable over Paul in view of Hafeman, in further in view of Khaled, and in further view of Bach. Applicant has cancelled claims 53, 54, and 74, without prejudice or disclaimer, rendering the rejection of those claims moot. With regard to the remaining claims, Applicant respectfully traverses each of the rejections for the reasons set forth below.

In responding to the rejections based on Paul, Applicant relied both on assertions made by the Examiner in the Office Action and on a machine translation of portions of the Paul reference. For the Examiner's convenience, Applicant includes a copy of the

machine translation of Paul used by Applicant on the attached sheet labeled "Machine Translation of Paul Reference." In submitting this machine translation, however, it should be understood that Applicant in no way attests to the veracity of the translation.

Applicant respectfully traverses the 102(b) rejection of claims 41 and 65-69 as being anticipated by Paul. For anticipation under 35 U.S.C. §102, the reference must teach every element of the claimed invention either explicitly or implicitly. M.P.E.P. 706.02. Because Paul does not teach every element of claims 41 and 65-69, Paul cannot anticipate any of these claims.

Paul does not disclose or suggest the invention recited in independent claims 41 and 69. For example, independent claim 41 recites a method for analyzing a sample including, among other things, "detecting the first signal impinging at small angles around the common beam to obtain a nephelometric measurement of the sample." In addition, independent claim 69 recites an apparatus for carrying out optical measurements comprising, *inter alia*, "means for detecting the first signal impinging at small angles around the common beam to obtain a nephelometric measurement of the sample." Paul does not disclose at least these aspects of the claimed invention.

Paul discloses a process and a device to determine the color and the degree of turbidity of a fluid confined by a wall, for example that of an enclosure or a drain. (Page 1, lines 1-6.) Specifically, white light from arc lamp 2 is sent through first fiber 4 into probe 10, through the liquid in passage 21, and then is reflected by first prism 6. (Page 3, line 34, through page 4, line 9.) On its way to the second fiber 8 from the first prism 6, the white light is collected by porthole 18 and optics 17 in a direction appreciably perpendicular to the incidental beam axis of light introduced into the drain 1 by the first

optical fiber 4 in order to measure turbidimetry via the avalanche photodiode 20. (Page 6, lines 16-31.) The light then travels through second fiber 8, out end 8b, through a collimating lens 9 and second prism 11, through lens 12 and graded attenuator 16, and finally onto multiliner spectrum analyser 13 so that the linear spectrum can be analyzed. (Page 4, line 33 through page 5, line 1.) Thus, Paul does not disclose or suggest, “detecting the first signal impinging at small angles around the common beam to obtain a nephelometric measurement of the sample” as recited in independent claim 41, or “means for detecting the first signal impinging at small angles around the common beam to obtain a nephelometric measurement of the sample” as recited in independent claim 69. Accordingly, because Paul does not disclose every aspect of the claimed invention, Applicant respectfully requests the allowance of independent claims 41 and 69 and their respective dependent claims.

Applicant respectfully traverses the Section 103(a) rejections of claims 42-52, 55-57, 61-64, 70-73, and 75-78. Applicant asserts that all of the claims rejected under Section 103(a) are allowable over Paul for at least the reasons set forth above with respect to the Section 102(b) rejection. Moreover, Applicant asserts that none of the additionally cited references, including Hafeman, Van Den Bosch, Bach, and Khaled, remedy the deficiencies of Paul discussed above. For at least this reason, Applicant respectfully requests withdrawal of the Section 103 rejections of claims 42-52, 55-57, 61-64, 70-73, and 75-78.

Applicant notes that claims 42-52, 55-57, 61-68, and 70-73, and 75-78 depend from one of independent claims 41 and 69, and are therefore allowable for at least the same reasons that each of those respective independent claims is allowable. In

addition, at least some of the dependent claims recite unique combinations that are neither taught nor suggested by the cited art, and therefore at least some also are separately patentable.

Applicant respectfully requests that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 41-52, 55-73, and 75-80 in condition for allowance. Applicant submits that the proposed amendments of claims 41, 42, 58-60, 63, 64, 69-73, and 79 do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

Furthermore, Applicant respectfully points out that the final action by the Examiner presented some new arguments as to the application of the art against Applicant's invention. It is respectfully submitted that the entering of the Amendment would allow the Applicant to reply to the final rejections and place the application in condition for allowance.

Finally, Applicant submits that the entry of the Amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

In view of the foregoing remarks, Applicant submits that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicant therefore requests the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

The Office Action contains characterizations of the claims and the related art with which Applicant do not necessarily agree. Unless expressly noted otherwise, Applicant declines to subscribe to any statement or characterization in the Office Action.

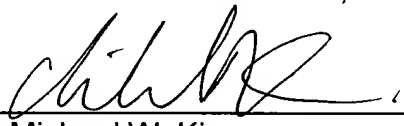
In discussing the specification, claims, abstract, and drawings in this Amendment After Final, it is to be understood that Applicant is in no way intending to limit the scope of the claims to any exemplary embodiments described in the specification or abstract and/or shown in the drawings. Rather, Applicant is entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law.

Please grant any extensions of time required to enter this Amendment After Final and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: April 20, 2004

By: 
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Machine Translation of Paul Reference



Page 1, lines 1-6

The present invention relates to a process and a device to determine the color and the degree of turbidity of a fluid confined by a wall, for example that of an enclosure or a drain (piping, pipeline, channel, tank, container, etc... with the atmospheric pressure or under pressure).

Page 3, lines 2-17

Advantageously, this device includes/understands means to collect the light diffused laterally in the fluid and of the means of measuring this light.

Advantageously, the aforementioned means for projector and to collect the light include/understand a probe immersed in the fluid, which is delimited by at least two parallel opposite walls and a third wall perpendicular to the preceding ones, means to project a pencil of light from one of the aforesaid parallel walls and in direction of the opposed wall, of the means envisaged on the aforementioned wall opposed to parallel to reflect the aforementioned beam itself, of the means to collect the reflected beam, which are adjacent with the known as means of projection, and of the means to collect the diffused light, which are laid out on the aforementioned third perpendicular wall.

Page 3, lines 34-37 through page 4, lines 1-3

A source of white light 2 (arc lamp under atmosphere xenon for example) is associated an optics 3 making it possible to focus the beam of white light on the end of entry 4a of a first optical fibre 4. This first optical fibre 4 penetrates in drain 1 and emerges inside a probe 10 established in tight drain 1 of way.

Page 4, lines 4-13

Probe 10 presents a passage 21 bathed by the liquid. The end of exit 4b of the first optical fibre 4 is associated an optics 5 laid out in probe 10 to send, through a port-hole 22, a beam of white light in the liquid being in passage 21, in direction of a body reflecting 6. This reflective body is also laid out in probe 10 it is preferably appeared as a corner of cube, which makes it possible to obtain relatively significant tolerances of positioning for the optical components.

Page 4, lines 33-38 through page 5, lines 1-22

The end of exit 8b of the second optical fibre 8 is associated an optics 9, a body 11 (a prism for example) of chromatic dispersion of the light to form a linear spectrum, an optics 12 and one linear detector multipoint 13 making it possible to analyze this linear spectrum. The linear detector multipoint 13 is in particular a detector camera-line.

The information delivered by the linear detector multipoint 13 is sent towards a calculator 15 through electronic interface 14 including/understanding mainly an analog-to-digital converter and a programmable clock.

Machine Translation of Paul Reference

Advantageously, the linear detector multipoint 13 can comprise, counters its receiving face of the spectrum of the light, an attenuator degraded 16 making it possible to correct the differences in luminous output of the system between blue and the red. Indeed, because of this inhomogeneous transmission, due in particular to the characteristics of emission of the source of white light 2, with the spectral attenuation of the first and second optical fibres 4 and 8 with the sensitivity of the linear detector multipoint 13, the transmission is four to five times larger in the red than in blue.

By using an attenuator degraded 16 having for example a coefficient of transmission of 100 % in blue and 20 % in the red, the differences in output will be appreciably corrected and the repeatability of improved measurement.

Page 5, lines 23-26 through page 6, lines 1-5

The device according to the invention makes it possible at any moment to recognize the color of the product circulating in drain 1. Indeed, the light having crossed the product has a spectrum representative of its color, this one being easily given thanks to the linear detector multipoint 13 and to the means of treatment consisted by the electronic interface 14 and calculator 15. The recognition of the color makes it possible to identify the nature of the product it of the mixture of products circulating in the drain.

Page 6, lines 6-15

One will free oneself from the possible turbidity of the product while exploiting the time of integration of the linear detector multipoint 13, thanks to the programmable clock of the electronic interface 14.

In a very advantageous way, the device according to the invention not only makes it possible to determine the color of the product circulating in drain 1, but also to determine the possible turbidity of this one, and in particular to distinguish a turbid product from an opaque product to the light radiation used.

Page 6, lines 16-36

To this end, a port-hole 18 associated an optics 17 and laid out inside probe 10, the right of passage 21 bathed by the liquid, makes it possible to collect the light in a direction appreciably perpendicular to the incidental beam axis of light introduced into the drain by the first optical fibre 4. This light is sent in a third optical fibre 19 associated a measuring instrument of light 20 (photodiode with avalanche or photomultiplier, for example). The unit defined by port-hole 18 and optics 17, constitutes a second optical system, laid out in probe 10.

Tests laboratory carried out by means of this device with three optical fibres made it possible to highlight the need for having third optical fibre to distinguish a turbid product from an opaque product to the light radiation used.

Machine Translation of Paul Reference

For various products, it was measured the coefficient T of transmission in the infra-red close relation (0,75 to 0,85 μm) by means of second optical fibre, and flow D of light diffused to 90 by means of third optical fibre.